



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/716,525	11/20/2003	Mitsuyoshi Watanabe	117796	6876
25944	7590	01/25/2005		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER SCHWARTZ, JORDAN MARC	
			ART UNIT 2873	PAPER NUMBER

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/716,525

Applicant(s)

WATANABE ET AL.

Examiner

Jordan M. Schwartz

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-9 and 13-18 is/are rejected.
- 7) ☒ Claim(s) 3 and 10-12 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/20/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

Claims 1 and 17 are objected to for the following reasons. Since the intended meaning could be determined from what is set forth in the specification and Figures, 112 rejection were not made but instead these lack of clarity issues are being raised in the following objection.

With respect to claims 1 and 17, that part of the claim stating, "at which a center line of a scanning angle of the scanning device enters the pupil" creates a lack of clarity because it implies that the scanning device and not the light beam scanned by the scanning device is entering the pupil. From what is set forth in the specification and Figures, the assumed meaning is "at which a center line of a scanning angle of the light beam scanned by the scanning device enters the pupil" and it is suggested that applicant make this or a similar change to provide the additional clarity.

Claim Rejections - 35 USC § 112

Art Unit: 2873

Claims 13-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claims 13-16, that part of the claim stating "the scanning device" renders the claims vague and indefinite because claim 10, from which these claims depend, is claiming two scanning devices ("a set of the scanning device") and therefore it is not clear if the claimed "the scanning device" of claims 13-16 is referring to both scanning devices of the set, or if it is referring to just one of the scanning devices of the set and the lack of clarity renders the claims vague and indefinite. The latter is the assumed meaning and it is suggested that "the scanning device" be changed to "a scanning device" to provide additional clarity.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by

Masuda patent number 5,489,950.

Art Unit: 2873

Masuda reads on these claims by disclosing the limitations therein including the following: an apparatus for introducing a light beam into a pupil of an eye to thereby project an image onto a retina (Figure 1, column 3, line 27 to column 4, line 2); a light beam generator generating and outputting a light beam corresponding to the image (column 3, line 30, column 4, lines 3-13); a scanning device for scanning the light beam output by the generator (Figure 1, "50", column 3, line 64); a guiding device for guiding the scanned beam toward the pupil (Figure 1, "52" in that the filter will inherently help to guide the light to the pupil); and an angle modifying device to modify a pupil incident angle at which a center line of a scanning angle of the light beam scanned by the scanning device enters the pupil (column 7, lines 35-47 i.e. the angle modifying device as the drive signal device which drives the signal with an irregular pulse to change the angle at which the scanned light enters the eye).

Claims 1-2, 4-9, 17-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Furness, II, et al patent number 6,639,570.

Furness reads on these claims by disclosing the limitations therein including the following: an apparatus for introducing a light beam into a pupil of an eye to thereby project an image onto a retina (column 1, lines 22-27); a light beam generator generating and outputting a light beam corresponding to the image (Figures 1-3, "12", column 4, line 24 to column 5, line 16, column 6, line 4 re the "photon generator" and/or the "video drive system"); a scanning device for scanning the light beam output by the generator (Figure 1, "16", Figures 2-3, "34", "62", column 4, line 24 to column 5, line 16, column 5, line 57 to column 6,

Art Unit: 2873

line 48); a guiding device for guiding the scanned beam toward the pupil (Figure 1, "18", Figure 2, "64" and/or "68" and/or "72", Figure 3, "92" and/or "100" and/or "72"); an angle modifying device to modify a pupil incident angle at which a center line of a scanning angle of the light beam scanned by the scanning device enters the pupil (column 8, lines 10-25 in that by adjusting the offset mirror and/or the scan angle, the pupil incident angle will inherently be modified at which a center line of a scanning angle of the light beam scanned by the scanning device enters the pupil); the angle modifying device at a position within a path extending from the scanning device to the guiding device to create an optical conjugate relationship with the pupil (Figure 3 with the modifying device as offset mirror "96" between scanning device "62" and guiding device "72" and will inherently be in a conjugate relationship i.e. as to its distance from the retina since it is reflecting light onto the retina of a user); first and second scanners scanning in a first and second direction as claimed with a relay optical system in conjugate relationship (Figure 3, scanners "34" and "62" and relay "88" through "68", and column 3, lines 6-18); the angle modifying device and second scanner having an optical conjugate relationship (Figure 3); a mirror arranged in front of the pupil (Figure 3, "100" and a relay optical system for introducing the scanned light beam into the mirror (Figure 3, "92" and/or "96"). The exit position of the light beam from the scanning device will inherently have an optical conjugate relationship with the position of the pupil since the light is being scanned to enter the pupil. The mirror and relay system can either be considered as part of the "guiding device" (with the "guiding device" as "100" and "72" of Figure 3) or as part of the "angle

Art Unit: 2873

modifying device" (with the "angle modifying device considered as "96", "100" and "72" of Figure 3). Furness further discloses the angle modifying device with an element common to the angle modifying device and the scanning device (Figure 3 with the "angle modifying device as "96") and the scanning device as "62" through "96"); and the angle modifying device including a mirror for receiving the light beam scanned by the scanning device (Figure 3 with the "angle modifying device" being considered as "96" through "100").

Claims 1-2, 8, and 17-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Tidwell patent number 6,352,344.

Tidwell reads on these claims by disclosing the limitations therein including the following: an apparatus for introducing a light beam into a pupil of an eye to thereby project an image onto a retina (column 3, lines 34-40); a light beam generator generating and outputting a light beam corresponding to the image (column 3, lines 43-60, Figure 1, "11" and "12"); a scanning device for scanning the light beam output by the generator (column 3, line 61, Figure 1, "16"); a guiding device for guiding the scanned beam toward the pupil (column 3, line 61, Figure 1, "20"); an angle modifying device to modify a pupil incident angle at which a center line of a scanning angle of the light beam scanned by the scanning device enters the pupil (column 1, lines 35-38, column 2, line 48 to column 3, line 9 re the embodiment that generates a plurality of exit pupils will inherently have an eye receiving the scanned light from a succession of exit pupils and therefore will inherently be having the scanned light entering the pupil at differing pupil incident angles); the angle modifying device at a position within

Art Unit: 2873

a path extending from the scanning device to the guiding device to create an optical conjugate relationship with the pupil (Figure 1 with the angle modifying device as the scanning device "16" and mirror "18" and column 1, lines 35-38, column 2, line 48 to column 3, line 9); the angle modifying device with an element common to the angle modifying device and the scanning device (Figure 1 with the angle modifying device as the scanning device "16" and mirror "18" and column 1, lines 35-38, column 2, line 48 to column 3, line 9); and the angle modifying device including a mirror for receiving the light beam scanned by the scanning device (Figure 1 with the angle modifying device as both "16" and "18" combined).

Examiner's Comments

For applicant's information, claims 4-7 and 9 would have been obvious based upon the Tidwell reference however such rejections would have been repetitive. Specifically, with reference to claims 4-7, Tidwell discloses the limitations therein with the exception of the claimed relay systems, however, the use of relay systems in optical systems are well known in the art to enhance the coupling of the light between optical elements. With respect to claim 9, Tidwell discloses as is set forth above and the use of both vertical and horizontal scanners as part of a scanning subsystem are well known in the art to provide accurate scanning of the light.

Allowable Subject Matter

Art Unit: 2873

Claims 3 and 10-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 13-16 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: with respect to the allowable subject matter, none of the prior art either alone or in combination disclose or teach of the claimed combination of limitations to warrant a rejection under 35 USC 102 or 103. Specifically, with reference to claim 3, none of the prior art either alone or in combination disclose or teach of the claimed apparatus for introducing a light beam into a pupil of an eye of a pupil to thereby project an image onto a retina, specifically including, as the distinguishing feature in combination with the other limitations, the claimed angle modifying device including the claimed first and second modifiers with the second modifier for modifying the pupil incident angle with respect to a second modifying direction intersecting the claimed first modifying direction. Specifically, with reference to claims 10-16, none of the prior art either alone or in combination disclose or teach of the claimed apparatus for introducing a light beam into a pupil of an eye of a pupil to thereby project an image onto a retina, specifically including, as the distinguishing feature in combination with the other limitations, the claimed set of scanning device, guiding device and angle modifying device for each pupil of a viewer and a controller for controlling the two

Art Unit: 2873

angle modifying devices for the pupils of both eyes such that two extending center lines intersect each other at the claimed display position.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jordan M. Schwartz whose telephone number is (571) 272-2337. The examiner can normally be reached on Monday to Friday (8:00-5:30), alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached at (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jordan M. Schwartz
Primary Examiner
Art Unit 2873
January 21, 2005